

REMARKS

The Office Action of March 31, 2009, including the Examiner's analysis of the pending claims which were rejected, has been carefully considered. Claims 15, 16 and 21-25 have been amended. Claims 26 and 27 have been cancelled. New Claims 28-30 have been added. For the reasons hereinafter recited, applicants respectfully submit that Claims 15, 16, 21-25 and 28-30 define novel and unobvious subject matter and should be allowed.

The inventions defined by the claims at issue are founded in the proposition that ubiquinone and ubiquinol are substances indispensable for the maintenance of human biological functions. However, ubiquinol or ubiquinone content in the body decreases markedly with aging and, also, as a result of various stresses to which the human body are subjected. In order to increase ubiquinol content, people frequently take supplements in the form of tablets or capsules. In such case, the subject often finds it necessary to purposely take a supplement apart from the ordinary foods.

It is also possible to supplement ubiquinol with ordinary foods however. Ubiquinol can be taken easily and conveniently, but it is necessary to add a large amount of ubiquinol to food materials in the preparation process of foods since the ubiquinol or ubiquinone content in the ordinary foods is very low. In the case of capsules or tablets, on the other hand, it is only necessary to simply encapsulate a large amount of ubiquinol or ubiquinone in capsules or tablets because uniformity (with regard to the appearance and flavor) is not a critical issue. In case of the ordinary foods whose forms are quite different from the tablets or capsules, there arise serious problems of separation or localization of ubiquinol or ubiquinone which adversely affects flavor, texture and appearance of the foods. The problems are inherent to the ordinary foods, and there is no such problem in the tablets or capsules.

The present invention solves problems of separation or localization and provides a ubiquinol-enriched oil/fat-containing food excellent in flavor, texture and appearance. Ubiquinol is highly absorbable orally and more effective than ubiquinone, but is unstable and is readily converted to ubiquinone by air oxidation. According to the present invention, in the presence of an oil/fat ubiquinol can be protected against oxidation and uniformly

dispersed in foods. In addition, localization of ubiquinol during storage can be prevented (see page 6, line 21 to page 7, line 16 in the specification).

Regarding the prior art rejections based on the claims at issue, the Chopra and Borowy were relied upon. Applicants' responses to those prior art rejections are detailed below. Preliminarily, however, it appears that the Examiner misinterprets claims 21 and 22. Claim 21 recites that the weight ratio of ubiquinone and ubiquinol contained in the ubiquinol-enriched oil/fat-containing food is not less than $\frac{1}{2}$ (page 10, lines 4 to 9 in the specification). Claim 22 recites that the content of ubiquinone and ubiquinol in total is 0.0001 to 50% by weight of the ubiquinol-enriched oil/fat-containing food when the content of both ubiquinol and ubiquinone is calculated as ubiquinone (see page 10, lines 23 to 32 in the specification).

The Chopra reference (U.S. 6,441,050) is directed to an orally palatable liquid composition comprising ubiquinol, a polysorbate surfactant and triglyceride. Chopra is silent as to oil/fat having a melting point of not lower than 20°C. As such, Chopra is not anticipatory of the claimed inventions. Furthermore, the composition of Chopra is a pharmaceutical composition (col. 2, lines 23 and 24) and not a commonly used food, let alone one of the foods recited in claim 24. Generally, pharmaceutical compositions have a small mass and localization of ubiquinol does not cause trouble. Therefore, it is not necessary to prevent non-uniform dispersion or localization of components. Since there is no disclosure of food materials, it cannot be predicted from Chopra that the process according to Claim 15 achieves a uniform dispersion of ubiquinol in a solid fat which is a continuous phase in ordinary foods. Accordingly, it should be clear that the present invention is neither anticipated by nor would it be rendered obvious by Chopra.

Concerning the inventions of newly added Claims 28 and 29, they enable one to produce a ubiquinol-enriched oil/fat-containing food even when ubiquinol is added over its solubility limit in the oil/fat. A homogenous oil/fat composition can be obtained by dissolving ubiquinol in oil/fat under heating, cooling the obtained solution for solidification or kneading it for plasticization or preparing an emulsion (page 23, line 25 to page 24, line 5). Chopra neither teaches nor suggests such processes.

In addition, Chopra discloses a composition in a liquid form and does not teach solidifying or plasticizing the composition. A solidified or plasticized composition is not obvious from the liquid form composition of Chopra. Therefore the invention according to Claim 28 cannot be anticipated nor logically rendered obvious over Chopra.

Regarding the Borowy reference and the 35 U.S.C. § 103(a) rejection, Borowy (U.S. 6,045,826) is directed to a water-soluble composition comprising a lipophilic compound, such as ubiquinol, and a solubilizing agent. Borowy aims at solubilization of ubiquinol, namely obtaining a solution of ubiquinol in water. Borowy is silent about oil/fat having a melting point of not lower than 20°C. The solubilizing agent used in Borowy is a compound having a hydrophobic moiety and a hydrophilic moiety and cannot be categorized as an edible oil/fat.

Regarding Brasco (U.S. 5,258,129), on the other hand, Brasco is directed to protection of a food against oxidation. Brasco teaches incorporating a coenzyme Q in the lipid phase of the food. Accordingly, it would be illogical to combine the teaching of Borowy, which aims at solubilization of ubiquinol in water, with Brasco, which teaches incorporating a coenzyme Q in the lipid phase. Even if they were to be combined, the claimed invention would not be obtained since Borowy is silent about oil/fat having a melting point of not lower than 20°C.

It should also be noted that the water-soluble composition of Borowy is intended for use as a pharmaceutical or a cosmetic. Therefore, Borowy would not be an analogous art reference relevant to an invention which requires an oil/fat-containing food.

Finally, Applicants submit that it would not be predicted from Borowy or Brasco that the process according to Claim 15 would achieve a uniform dispersion of ubiquinol in a solid fat which is a continuous phase. Accordingly, the claimed invention would not logically be considered obvious over Borowy in view of Brasco.

In summary, applicants submit that the pending claims, as amended, are plainly distinguished by the prior art references extant. Accordingly, the application should now be in condition for allowance.

Respectfully submitted,

/Richard G. Lione/

Richard G. Lione

Registration No. 19,795

Attorney for Applicants

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200